

# FREEDOM TO CREATE

GPU-Powered Virtual Workstations Offer  
Greater Performance and Flexibility



## In an era of disruptive distribution models, increased consumer demands for high-quality visual effects, and shrinking production schedules and budgets, Media & Entertainment (M&E) companies have been tied to the desktop for too long.

To address the need for greater mobility and collaboration among creative professionals — and to provide opportunities for more iterations in less time — M&E companies are starting to turn to virtual desktop infrastructure (VDI). Revolutionary features, now included in NVIDIA's virtual GPU software, enable artists to work productively from anywhere on almost any device with access to Windows-based applications, or even the Linux-, CUDA-, and OpenCL-based applications they rely on for production. With **NVIDIA® Quadro® Virtual Data Center Workstation (Quadro vDWS)**, creative professionals can access the capabilities of a Quadro physical workstation in a VDI environment. With **NVIDIA RTX™ Server**, a solution built on NVIDIA RTX 6000 or RTX 8000 GPUs coupled with NVIDIA Quadro vDWS software, they can achieve exponentially faster rendering performance and spin up virtual workstation nodes when they're needed. Additionally, support for **Teradici Cloud Access Software** with NVIDIA Quadro vDWS helps artists achieve the consistent, high performance, high quality experience they need to be their most productive. With **NVIDIA GRID® software**, knowledge workers can achieve a seamless and consistent user experience, while IT can ensure that email and internet access is separated from sensitive files. And **NVIDIA Virtual Compute Server (vCS)** software enables GPU-accelerated virtualization of artificial intelligence and high-performance computing (HPC) workloads.

The power and flexibility of NVIDIA's virtual GPU software offers additional benefits from an IT management perspective. Because resources can be centralized in the data center or cloud and scaled as needed, it's easier than ever to bid jobs more competitively, onboard employees, partners, and contractors, and protect valuable intellectual property. Now M&E firms can better align budgets and projects for a growing number of use cases.

### QUADRO RTX UP TO 16X FASTER THAN CPU

Render scenes in Autodesk Arnold up to 16X faster than CPU-only with 8x Quadro RTX 8000 with Quadro vDWS.



### WHAT IS GPU VIRTUALIZATION?

GPU virtualization enables every virtual machine to get the benefits of a GPU just like a physical desktop has. Because work that was typically done by the CPU has been offloaded to the GPU, the user has a much better experience and more users can be supported.

# TRANSFORM YOUR WORKFLOWS FOR GREATER EFFICIENCY

NVIDIA's virtual GPU software makes it possible for M&E organizations to gain unprecedented performance and manageability in a virtual desktop environment.

## Enhance Productivity and Creativity

Support for NVIDIA Quadro vDWS with RTX Server lets artists create on any device, anywhere - whenever inspiration strikes. Because files are centrally located in the data center, NVIDIA Quadro vDWS enables seamless collaboration from separate offices or production locations with less risk of version control issues. This is especially important when the pressure is on and several people need to work on the same files. Multi-vGPU support — the ability to assign multiple NVIDIA GPUs to a single virtual machine (VM) — makes it possible for artists and contractors to work on the most graphics-intensive 3D and rendering workloads. Creative teams can work with confidence, knowing that their files are protected and that projects can keep moving forward 24/7. Additionally, they are free to work where and whenever inspiration strikes – on just about any device, including Wacom tablets, without latency or pressure sensitivity issues.

## Increase Manageability and Scalability

The rapid scaling of resources simplifies IT management, helps accelerate production schedules, and keeps costs low. Because VMs can be up and running in minutes, M&E companies can respond to changing project requirements with greater agility. Live Migration, with support for VMware vMotion and Citrix XenMotion, enables live VMs to be migrated without user disruption. This facilitates more efficient data center maintenance, and enables creative and technical professionals to access productivity apps by day and render scenes at night on the same server infrastructure.

## Create Cost Efficiencies

Reducing the need for physical workstations can reduce power consumption, streamlines the data center, and allows IT administrators to quickly set up users, troubleshoot issues, and facilitate upgrades — with no disruption or data loss. This can be particularly useful in mergers and acquisitions, and working across geographically-dispersed productions. As traditional applications are phased out, M&E companies are increasingly motivated to switch from Mac applications to virtualized, Windows- and Linux-based applications.

## Enhance Security and Compliance

With multi-million dollar budgets in play, M&E companies must protect their valuable 3D and film production assets. They can't afford data loss due to computer crashes or failures, or to have projects leaked online before an official release. By keeping files centralized in the data center or cloud, while enabling editing and rendering on endpoint devices, data can't walk away or get lost. What's more, deploying VDI for air gap systems separates Internet access from artist workstations for additional data protection.

### INNOVATIVE CAPABILITIES

NVIDIA RTX Server with Quadro vDWS enables increased productivity and utilization and reduced costs. Provision virtual workstations or a combination of virtual workstations and render nodes from a single, Quadro RTX accelerated, server.

# TESTED AND CERTIFIED FOR ENTERPRISE-CLASS RELIABILITY

NVIDIA virtual GPU solutions set the industry standard for virtualized creativity, ensuring that users have a smooth, responsive experience while editing, rendering, and working with massive 3D datasets. To maximize performance—and to get the best possible experience from your IT investment—NVIDIA Quadro professional graphics solutions are tested and certified by all the leading workstation OEMs and have received independent software vendor (ISV) certifications for more than 100 professional applications and IT management tools. What’s more, Quadro software drivers are designed for stability and long lifespans.

## NVIDIA VIRTUAL GPU SOLUTIONS

<h3>NVIDIA Quadro vDWS</h3> <p>NVIDIA Quadro Virtual Data Center Workstation (Quadro vDWS) is ideally positioned for studios, broadcast networks, and production houses that work on sensitive files from multiple locations.</p>	<h3>NVIDIA GRID</h3> <p>NVIDIA GRID Virtual PC/Virtual Applications (GRID vPC/vApps) are positioned for general-purpose VDI across all sectors of the M&amp;E industry.</p>	<h3>NVIDIA Virtual Compute Server</h3> <p>NVIDIA Virtual Compute Server (vCS) is ideal for data scientists and analysts running computationally intensive workloads – including artificial intelligence (AI), data science and High-Performance Computing (HPC) applications.</p>
<p><b>BENEFITS</b></p> <ul style="list-style-type: none"> <li>Support for up to two 8k, four 5k or 4K monitors, and large frame buffer sizes for increased productivity</li> <li>Security enforced in data center</li> <li>Lower IT management costs</li> <li>Increased mobility</li> <li>Business continuity and disaster recovery managed centrally</li> <li>Reduce downtime, even during maintenance, with Live Migration</li> <li>Support for Linux or Windows applications</li> <li>Support for multiple NVIDIA GPUs in a single VM, to power the most demanding workflows</li> <li>Added flexibility and business agility from the cloud enablement of GPU-accelerated virtual workstations</li> </ul>	<p><b>BENEFITS</b></p> <ul style="list-style-type: none"> <li>Supports increasing graphical requirements of modern productivity applications</li> <li>Support one 5K, up to two 4K, or four HD monitors for increased productivity</li> <li>Cost effective solution to scale VDI across your organization for as little as \$2 per user per month<sup>1</sup></li> <li>Lower IT management costs</li> <li>Security enforced in the data center</li> <li>Increased employee and contractor mobility</li> <li>Business continuity and disaster recovery managed centrally</li> <li>Support for Linux or Windows applications</li> </ul>	<p><b>BENEFITS</b></p> <ul style="list-style-type: none"> <li>Run containerized applications for machine learning and deep learning in a virtualized environment to isolate workloads and securely support multiple users</li> <li>Harness the power of multiple GPUs in a single VM to scale application performance, important for deep learning training workloads</li> <li>Eliminate data center silos and leverage the same hypervisor management tools for both compute and graphics workloads</li> <li>Maximize infrastructure utilization by running compute-intensive workflows during the night when utilization of VDI is lower</li> </ul>
<p><b>COMMON APPLICATIONS</b></p> <ul style="list-style-type: none"> <li><b>Adobe:</b> Photoshop, After Effects, Premiere Pro, Dimension, Character Animator</li> <li><b>Autodesk:</b> 3ds Max, Arnold, Maya</li> <li><b>Avid:</b> Media Composer, Pro Tools</li> <li><b>Blackmagic Design:</b> DaVinci Resolve, Fusion</li> <li><b>Epic Games:</b> Unreal Engine</li> <li><b>Foundry:</b> Modo, Katana, NUKE, NUKE Studio</li> <li><b>Epic Games:</b> Unreal Engine</li> <li><b>Unity Technologies:</b> Unity</li> </ul>	<p><b>COMMON APPLICATIONS</b></p> <ul style="list-style-type: none"> <li>Microsoft Office, Skype, Adobe Creative Cloud</li> </ul>	<p><b>COMMON APPLICATIONS</b></p> <ul style="list-style-type: none"> <li>NVIDIA RAPIDS, TensorFlow, Caffe2, OmniSciDB, MXNet, Theano, Torch, Keras, Microsoft CNTK, Kinetica</li> </ul>

<sup>1</sup> Assumes cost of subscription, NVIDIA GRID software, and hardware, with three-year amortization of two M10 cards supporting 87 GRID vApps users.

# CUSTOMER PROFILE

## Animal Logic

Recognized as one of the world’s leading independent creative digital studios, Animal Logic needed to quickly spin up a new studio to support production for The LEGO Movie 2: The Second Part. They turned to NVIDIA Quadro vDWS with Teradici Cloud Access Plus as a cost-effective and flexible way to deploy high performance virtual workstations to run tools like Autodesk Maya, XSI, and Nuke. The new solution enables improved mobility for users who can now access all of the pipeline tools they need from anywhere.

“Users were surprised at how efficient the virtual machines were when loading certain scenes. Both Windows and Linux users found that they could rely on the NVIDIA vGPU performance when working with more intense applications such as ZBrush, Maya and XSI.”

—Matt Braunstein, Systems Engineer at Animal Logic



Read how creative staff at Animal Logic streamlines production workflows with NVIDIA Quadro vDWS.



**ANIMALLOGIC**

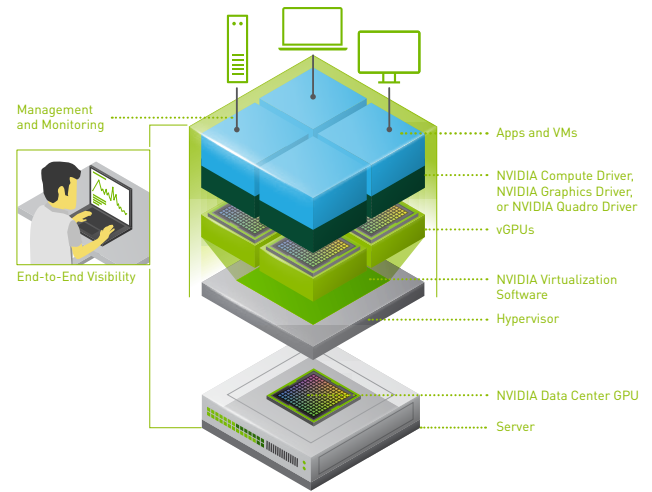
## KEY M&E USER GROUPS

	ANIMATORS, PRODUCTION ARTISTS, VFX PRODUCERS	VIDEO EDITORS	MARKETING, CREATIVE, DESIGN, ILLUSTRATORS	ANALYSTS, DATA SCIENTISTS, DEVELOPERS
<b>USE CASES</b>	Rendering and making changes to graphics-intensive scenes	Remotely viewing and editing film footage, including real-time, on-air production, highlight reels, and rotoscoping	General-purpose VDI using Windows 10 and graphics-rich productivity apps, as well as virtualized design and creative apps such as Adobe Creative Cloud	AI-enabled and high-performance compute workloads
<b>RECOMMEND</b>	Quadro vDWS on RTX 6000 or RTX 8000 (supports up to two 8K displays)	Quadro vDWS on RTX 6000, RTX 8000, or NVIDIA T4 (supports up to two 8K displays)	GRID vPC/vApps on M10, T4, or P6 for blade servers (supports up to four HD, two 4K, or one 5K display)	vCS on V100S, RTX 6000, RTX 8000, or T4



# HOW NVIDIA VIRTUAL GPU<sub>s</sub> WORK

In a virtualization environment powered by NVIDIA virtual GPUs, NVIDIA virtual GPU software is installed at the virtualization layer, along with the hypervisor. This software creates virtual GPUs that let every VM share the physical GPU installed on the server. For more demanding workflows, a single VM can harness the power of up to four physical GPUs. The NVIDIA software includes a graphics driver for every VM. Quadro vDWS, for example, includes the powerful Quadro driver. Because work that was typically done by the CPU is offloaded to the GPU, the user has a much better experience. Demanding engineering and creative applications, as well as compute-intensive server workloads such as AI and data science, can now be supported in a virtualized and cloud environment.



## WHAT MAKES NVIDIA VIRTUAL GPU<sub>s</sub> POWERFUL

### EXCEPTIONAL USER EXPERIENCE

Superior performance, with the ability to support both compute and graphics workloads for every vGPU



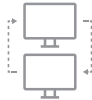
### PREDICTABLE PERFORMANCE

Consistent performance with guaranteed quality of service, whether on-premises or in the cloud



### BEST USER DENSITY

The industry's highest user density solution, with support for up to 32 virtual desktops per GPU, plus lower TCO with more than 9 vGPU profiles for the most flexibility to provision resources to match your users' needs



### OPTIMAL MANAGEMENT AND MONITORING

End-to-end management and monitoring that delivers real-time insight into GPU performance, as well as broad partner integrations so you can use the tools you know and love



### CONTINUOUS INNOVATION

Regular cadence of new software releases that ensures you stay on top of the latest features and enhancements



### BROADEST ECOSYSTEM SUPPORT

Support for all major hypervisors and the most extensive portfolio of professional apps certifications with Quadro drivers



For more information, visit [www.nvidia.com/virtualgpu](http://www.nvidia.com/virtualgpu)